



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/836,480

04/18/2001

Kazutaka Miyano

PNDF-01034

8820

30743

7590

10/04/2004

WHITHAM, CURTIS & CHRISTOFFERSON, P.C.
11491 SUNSET HILLS ROAD
SUITE 340
RESTON, VA 20190

EXAMINER

WANG, TED M

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/836,480	Applicant(s) MIYANO, KAZUTAKA	
	Examiner Ted M Wang	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 4-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/19/2001</u> , <u>3/3/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because
 - On Fig.1, "542" should be pointed to the outer box that includes 511 and 513.
 - On Fig.8, the arrow of the signal 308, "↓", to element 220 should be changed to "↑".
 - On Fig.9, "15" next to I4 should be changed to "16"; "16" next to 17 should be changed to "15"; "13C – 18C" should be changed to "13G – 18G".
 - On Fig.10, "62C" should be changed to "62G".
 - On Fig.11A, "305" on the left should be changed to "308".
 - On page 12, "100" should be changed to "110".
 - On fig.13, "35C" and "71C – 73C" should be changed to "35C" and "71G – 73G".

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawing should label all the elements in the figures. For example, in Fig.1 541 should be labeled as phase circuit generator; and 543 should be labeled phase shifter; etc.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 301 in Fig.12. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the

application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The disclosure is objected to because of the following informalities:

- On page 2 line 25, "700" should be changed to "710".
- On page 9 lines 11, 13, 16, 19, and 22, "," should be changed to ".".
- On page 10 lines 14, 16, and 19, "," should be changed to ".".
- On page 10 lines 19, delete, "and".

- On page 11 line 27, add "With reference to Fig.8," in front of "the bias generation means 200..."
- On page 16 lines 1 and 5, delete "wn0" and change "51" to "52" respectively.
Appropriate correction is required.

Preliminary Amendment

6. The preliminary amendment filed on 4/18/2001 has been entered.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Sano et al. (US4,438,353).

- In regard claim 1, Sano et al. discloses an I^2L circuit with variable injector current source with a functional block having a constant-current source (Fig.9 and 10 elements 180, 186, and 192, and column 6 lines 8-32); and
bias generation means for generating a constant current source bias signal for controlling the constant current source of the functional block (Fig.9 and 10 elements 176 and 178, and column 5 line 24 – column 6 line 53),

said bias generation means comprising bias control means which changes the bias signal according to the frequency of the input signal (Fig.9 and 10 elements 176 and 178, and column 5 line 24 – column 6 line 53).

- In regard claim 2, the limitation that the bias generation means comprises: a first bias generation circuit for generating a primary bias signal corresponding to a predetermined constant current (Fig.3 element 132, Fig.8 element 172, Fig.9 element 192, column 2 lines 40-64, column 5 lines 3-14, and column 6 lines 29-32); and a second bias generation circuit for generating an internal bias signal based on a bias correction signal output from the bias control means according to the frequency of the primary bias signal and the input signal (Fig.3 element 136, Fig.8 element 174, Fig.9 elements 176 and 178, column 2 lines 40-64, column 5 lines 3-14, and column 5 line 24 – column 6 line 53).
- In regard claim 3, the limitation that the bias control means comprising: measuring means for measuring the frequency of the input signal (Fig.9 element 176, TM1 and TM2, and column 5 line 24 – column 6 line 53); and correction signal generation means for outputting a bias correction signal based on the results of the measurement with the measuring means (Fig.9 element 178 and column 5 line 24 – column 6 line 53).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (US4,438,353) in view of the admitted prior art of the instant application.

- In regard claim 7, Sano et al. discloses all limitation as described above except specifically teaching a phase shifter, phase comparator, phase synchronizer, and a duty corrected circuit.

The admitted prior art of the instant application teaches phase shifting means for generating m phase shift processing signals, wherein m is an integer of two or more, different from each other in phase based on the input signal (Fig.1 elements 541, 543, 610-613, and 543, 616, and 617, and page 1 line 17 – page 2 line 10, Fig.2 element 730, and page 3 lines 11-16);

phase comparison means which compares the phase of the input signal with the phase of the phase lock signal to detect a phase difference and based on the detected phase difference (Fig.1 element 542, Fig.2 element 710, and page 1 lines 17-28, and page 2 line 15 – page 3 line 10), outputs a phase control signal (Fig.1 elements 608 and 609, Fig.2 element 710 output, page 1 lines 23-27, and page 2 line 27 – page 3 line 10);

phase synthesizing means for outputting a phase corrected signal having a predetermined phase relationship with the input signal based on the m phase

shift processing signals, produced by the phase shifting means, and the phase control signal (Fig.1 and Fig.2 and page 1 line 17 – page 3 line 16); and first duty correction means which corrects the duty of the phase corrected signal and outputs the phase lock signal (Fig.2 element 700 and page 2 lines 15-18) so as to reduce power consumption of a memory system and the like including a synchronous DRAM.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sano's I^2L circuit in view of the admitted prior art of the instant application's teaching in order to reduce power consumption of a memory system and the like including a synchronous DRAM.

- In regard claim 8, the limitation that second duty correction means for correcting the duty of the input signal and outputting a duty corrected signal, wherein the duty corrected signal is input into the phase shifting means can further be taught by the admitted prior art of the instant application in Fig.2 element 740 and page 3 lines 5-10.

Allowable Subject Matter

11. Claims 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. Reference US6,285,725, US6,239,633 and Low-jitter process-independent DLL and PLL based on self-biased techniques (*Maneatis, J.G.*; Solid-State Circuits, IEEE Journal of, Volume: 31, Issue: 11, Nov. 1996, Pages:1723– 1732) are cited because they are put pertinent to the DLL and bias generation. However, none of references teach detailed connection as recited in claim.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M Wang whose telephone number is (571) 272-3053. The examiner can normally be reached on 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang


SHUWANG LIU
PRIMARY EXAMINER